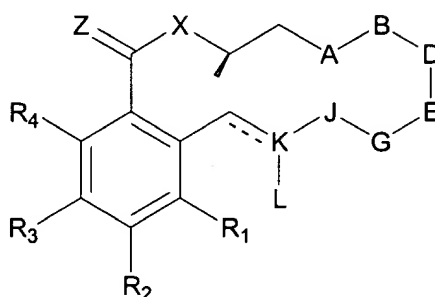


## Amendments to the Claims

The following **Listing of Claims** will replace all prior versions, and listings, of claims in the application:

### Listing of Claims

1. (Currently amended) A compound having the structure:



wherein the dotted line --- represents an optional bond, such that either a single or a double bond is present;

$R_1$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $N(R_A)_2$ , wherein each occurrence of  $R_A$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

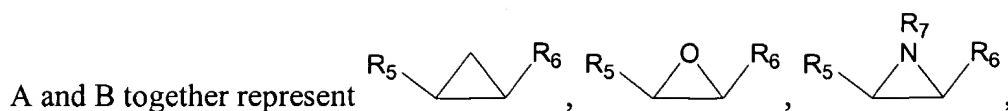
$R_2$  is hydrogen, halogen, cyano,  $-OR_B$ ,  $-N(R_B)_2$ ,  $-SR_B$ ,  $-O(C=O)R_B$ ,  $-N(R_B)(C=O)(R_B)$ ,  $-C(O)R_B$ ,  $-C(O)OR_B$ ,  $-CON(R_B)_2$ ,  $-OCO_2R_B$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_3$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $-N(R_C)_2$ , wherein each occurrence of  $R_C$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_4$  is hydrogen, halogen, cyano,  $-OR_D$ ,  $-N(R_D)_2$ ,  $-SR_D$ ,  $-O(C=O)R_D$ ,  $-N(R_D)(C=O)(R_D)$ ,  $-C(O)R_D$ ,  $-C(O)OR_D$ ,  $-CON(R_D)_2$ ,  $-OCO_2R_D$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;



-CHR<sub>5</sub>-CHR<sub>6</sub>-, -CR<sub>5</sub>=CR<sub>6</sub>-, wherein R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen, halogen, cyano, -OR<sub>J</sub>, -N(R<sub>J</sub>)<sub>2</sub>, -SR<sub>J</sub>, -O(C=O)R<sub>J</sub>, -O(S=O)R<sub>J</sub>, -N(R<sub>J</sub>)(C=O)(R<sub>J</sub>), -C(=O)R<sub>J</sub>, -C(=O)OR<sub>J</sub>, -CON(R<sub>J</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>J</sub>, -OSO<sub>2</sub>R<sub>J</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>J</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, and wherein R<sub>7</sub> is hydrogen, -OR<sub>K</sub>, -SR<sub>K</sub>, -C(O)OR<sub>K</sub>, -S(O)<sub>2</sub>R<sub>K</sub>, -O(C=O)R<sub>K</sub>, -N(R<sub>K</sub>)(C=O)(R<sub>K</sub>), -C(O)R<sub>K</sub>, -C(O)OR<sub>K</sub>, -CON(R<sub>K</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>K</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>K</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or when A and B together represent -CHR<sub>5</sub>-CHR<sub>6</sub>-, R<sub>5</sub> and R<sub>6</sub> taken together represent a substituted or unsubstituted 3-7 membered aliphatic, heteroaliphatic, aryl or heteroaryl ring,


D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>-, -CR<sub>8</sub>=CR<sub>9</sub>-, wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, -CR<sub>10</sub>=CR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

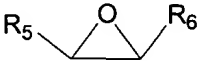
K and L together represent C=O, C=S, CH-CH<sub>3</sub>, CH-CH(R<sub>L</sub>)<sub>2</sub>, C=C(R<sub>L</sub>)<sub>2</sub>, -CH<sub>2</sub>-, -C(-S(CH<sub>2</sub>)<sub>3</sub>S-)-, CH-OR<sub>L</sub>, CH-SR<sub>L</sub>, CH-N(R<sub>L</sub>)<sub>2</sub>, CH-N(R<sub>L</sub>)(C=O)(R<sub>L</sub>), C=N-O-R<sub>L</sub>, CH-N=O, C=C(R<sub>L</sub>)-N(R<sub>L</sub>)<sub>2</sub>, C=N-R<sub>L</sub>, C=N-N(R<sub>L</sub>)<sub>2</sub>, or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent C-N(R<sub>L</sub>)<sub>2</sub>, wherein each occurrence of R<sub>L</sub> is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or two occurrences of R<sub>L</sub> taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

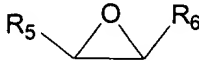
wherein one or any two of  $R_1$ ,  $R_A$ ,  $R_2$ ,  $R_B$ ,  $R_3$ ,  $R_C$ ,  $R_4$ ,  $R_D$ ,  $R_5$ ,  $R_6$ ,  $R_J$ , or  $R_L$  are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and pharmaceutically acceptable derivatives thereof, with the proviso that:

(1) if A and B together are  and  $R_5$  and  $R_6$  are each hydrogen; if D and E together are  $-\text{CH}=\text{CH}-$ ; if G and J together are  $-\text{CH}=\text{CH}-$ ; if K and L together are  $\text{C}=\text{O}$ ; if  $R_1$  is hydrogen or Cl; and if  $R_3$  is hydrogen,

then  $R_2$  is not  $-\text{OR}_B$  or  $-\text{O}(\text{C}=\text{O})\text{R}_B$ , wherein  $R_B$  is hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety; and  $R_4$  is not  $-\text{OR}_D$  or  $-\text{O}(\text{C}=\text{O})\text{R}_D$ , wherein  $R_D$  is hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

(2) if A and B together are  and  $R_5$  and  $R_6$  are each hydrogen; if D and E together are  $-\text{CH}_2-\text{CH}_2-$ ; if G and J together are  $-\text{CH}_2-\text{CH}_2-$  or  $-\text{CH}=\text{CH}-$ ; if K and L together are  $\text{C}=\text{O}$ ; if  $R_1$  is hydrogen or Cl; and if  $R_3$  is hydrogen,

then  $R_2$  is not  $-\text{OR}_B$  or  $-\text{O}(\text{C}=\text{O})\text{R}_B$ , wherein  $R_B$  is hydrogen or an alkyl, alkoxy, alkenyl, alkenyloxy, alkynyl, aryl, aryloxy, heterocycle, cycloalkyl, cycloalkenyl, or cycloalkenyl fused to an aryl group; and  $R_4$  is not  $-\text{OR}_D$  or  $-\text{O}(\text{C}=\text{O})\text{R}_D$ , wherein  $R_D$  is hydrogen or an alkyl, alkoxy, alkenyl, alkenyloxy, alkynyl, aryl, aryloxy, heterocycle, cycloalkyl, cycloalkenyl, or cycloalkenyl fused to an aryl group;

(3) if  $R_1$  is Cl; if  $R_2$  is  $\text{OR}_B$  and  $R_B$  is hydrogen, methyl, alkanoyl, alkenoyl, tert-butyl dimethylsilyl or tert-butyldiphenylsilyl; if  $R_3$  is hydrogen; if  $R_4$  is  $\text{OR}_D$  and  $R_D$  is hydrogen, methyl, alkanoyl, alkenoyl, tert-butyldimethylsilyl, or tert-butyldiphenylsilyl; if D and E together are  $-\text{CH}=\text{CH}-$ ; if G and J together are  $-\text{CH}=\text{CH}-$ ; if A and B together are  or if A and B together are  $-\text{CHR}_5-\text{CHR}_6-$  and  $R_6$  is hydrogen or halogen or  $-\text{OH}$  or  $-\text{OCH}_3$  and  $R_5$  is

OR<sub>J</sub>, wherein R<sub>J</sub> is hydrogen, benzoyl, alkanoyl, or alkenoyl, or R<sub>5</sub> is -O(S=O)R<sub>J</sub>, wherein R<sub>J</sub> is a second compound of formula (I) linked via an oxygen atom present at R<sub>5</sub> in the second compound of formula (I), and wherein R<sub>6</sub> of the second compound of formula (I) is halogen; Z of the second compound of formula (I) is O; X of the second compound of formula (I) is O, R<sub>1</sub> of the second compound of formula (I) is Cl; R<sub>2</sub> of the second compound of formula (I) is OR<sub>B</sub> and R<sub>B</sub> is hydrogen, alkanoyl, alkenoyl, tert-butyl dimethylsilyl or tert-butyldiphenylsilyl; R<sub>3</sub> of the second compound of formula (I) is hydrogen; R<sub>4</sub> of the second compound of formula (I) is OR<sub>D</sub> and R<sub>D</sub> is hydrogen, alkanoyl, alkenoyl, tert-butyldimethylsilyl, or tert-butyldiphenylsilyl;

then K and L together are not C=O or C=N-O-R<sub>L</sub>, when R<sub>L</sub> is hydrogen, or substituted or unsubstituted lower alkyl, a substituted or unsubstituted alkenyl moiety, a substituted or unsubstituted heteroaliphatic moiety, a substituted or unsubstituted heteroarylalkyl moiety, a substituted or unsubstituted arylalkyl moiety, a substituted acyl moiety or a substituted or unsubstituted aryl moiety;

except that K and L together can be C=N-O-R<sub>L</sub>, when R<sub>L</sub> is a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids;

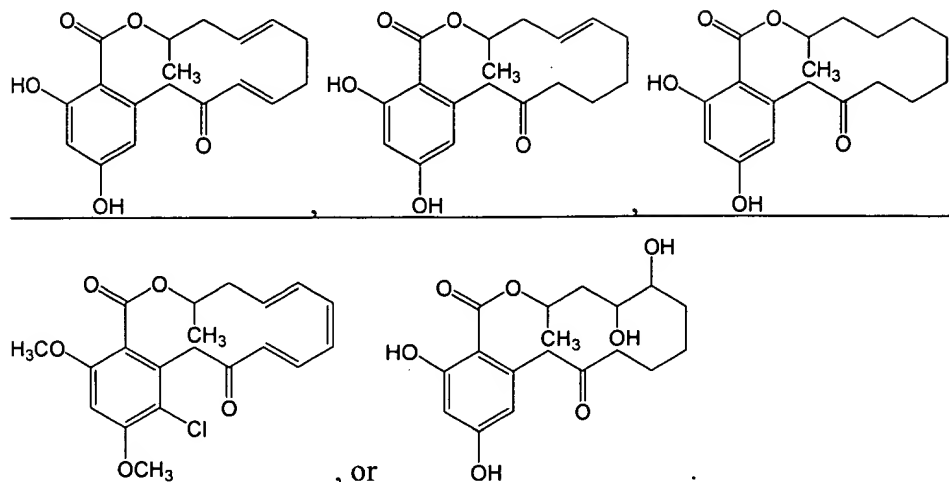
(4) if D and E together are -CH<sub>2</sub>-CH<sub>2</sub>-; if G and J together are -CH<sub>2</sub>-CH<sub>2</sub>-; if K and L together are CH<sub>2</sub>,

then A and B together are not -CH<sub>2</sub>-CH<sub>2</sub>-;

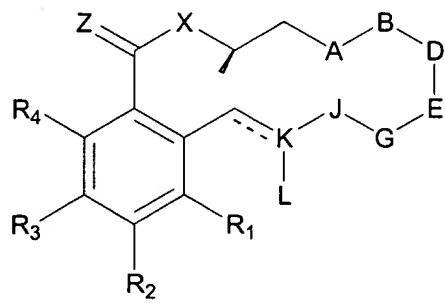
(5) if D and E together are -CH<sub>2</sub>-CH<sub>2</sub>-; if G and J together are -CH<sub>2</sub>-CH<sub>2</sub>-; if K and L together are CH<sub>2</sub>; if R<sub>1</sub> is hydrogen; if R<sub>2</sub> is -OR<sub>B</sub>, or -O(C=O)R<sub>B</sub>, wherein R<sub>B</sub> is hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety; if R<sub>3</sub> is hydrogen; and if R<sub>4</sub> is hydrogen, -OR<sub>D</sub>, or -O(C=O)R<sub>D</sub>, wherein each occurrence of R<sub>D</sub> is independently hydrogen, or an aliphatic, aryl, or heteroaryl moiety;

then A and B together are not -CH<sub>2</sub>-CHR<sub>6</sub>-, whereing R<sub>6</sub> is substituted aliphatic, heteroaliphatic, -CHO, or -CO<sub>2</sub>H; and

(6) the compound is other than:



2. (Currently amended) A compound having the structure:



\_\_\_\_\_ wherein the dotted line --- represents an optional bond, such that either a single or a double bond is present;

R<sub>1</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or N(R<sub>A</sub>)<sub>2</sub>, wherein each occurrence of R<sub>A</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>2</sub> is hydrogen, halogen, cyano, -OR<sub>B</sub>, -N(R<sub>B</sub>)<sub>2</sub>, -SR<sub>B</sub>, -O(C=O)R<sub>B</sub>, -N(R<sub>B</sub>)(C=O)(R<sub>B</sub>), -C(O)R<sub>B</sub>, -C(O)OR<sub>B</sub>, -CON(R<sub>B</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>B</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>B</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

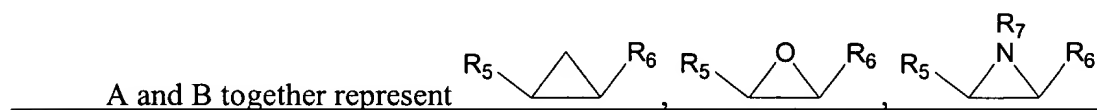
R<sub>3</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or -N(R<sub>C</sub>)<sub>2</sub>, wherein each occurrence of R<sub>C</sub> is independently hydrogen, or

an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>4</sub> is hydrogen, halogen, cyano, -OR<sub>D</sub>, -N(R<sub>D</sub>)<sub>2</sub>, -SR<sub>D</sub>, -O(C=O)R<sub>D</sub>, -N(R<sub>D</sub>)(C=O)(R<sub>D</sub>), -C(O)R<sub>D</sub>, -C(O)OR<sub>D</sub>, -CON(R<sub>D</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>D</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>D</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;



-CHR<sub>5</sub>-CHR<sub>6</sub>-, -CR<sub>5</sub>=CR<sub>6</sub>-, wherein R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen, halogen, cyano, -OR<sub>J</sub>, -N(R<sub>J</sub>)<sub>2</sub>, -SR<sub>J</sub>, -O(C=O)R<sub>J</sub>, -O(S=O)R<sub>J</sub>, -N(R<sub>J</sub>)(C=O)(R<sub>J</sub>), -C(=O)R<sub>J</sub>, -C(=O)OR<sub>J</sub>, -CON(R<sub>J</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>J</sub>, -OSO<sub>2</sub>R<sub>J</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>J</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, and wherein R<sub>7</sub> is hydrogen, -OR<sub>K</sub>, -SR<sub>K</sub>, -C(O)OR<sub>K</sub>, -S(O)<sub>2</sub>R<sub>K</sub>, -O(C=O)R<sub>K</sub>, -N(R<sub>K</sub>)(C=O)(R<sub>K</sub>), -C(O)R<sub>K</sub>, -C(O)OR<sub>K</sub>, -CON(R<sub>K</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>K</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>K</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or when A and B together represent -CHR<sub>5</sub>-CHR<sub>6</sub>-, R<sub>5</sub> and R<sub>6</sub> taken together represent a substituted or unsubstituted 3-7 membered aliphatic, heteroaliphatic, aryl or heteroaryl ring,

D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>-, -CR<sub>8</sub>=CR<sub>9</sub>-, wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, -CR<sub>10</sub>=CR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

K and L together represent C=O, C=S, CH-CH<sub>3</sub>, CH-CH(R<sub>L</sub>)<sub>2</sub>, C=C(R<sub>L</sub>)<sub>2</sub>, -CH<sub>2</sub>-, -C(-S(CH<sub>2</sub>)<sub>3</sub>S-)-, CH-OR<sub>L</sub>, CH-SR<sub>L</sub>, CH-N(R<sub>L</sub>)<sub>2</sub>, CH-N(R<sub>L</sub>)(C=O)(R<sub>L</sub>), C=N-O-R<sub>L</sub>, CH-N=O, C=C(R<sub>L</sub>)-N(R<sub>L</sub>)<sub>2</sub>, C=N-R<sub>L</sub>, C=N-N(R<sub>L</sub>)<sub>2</sub>, or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent C-N(R<sub>L</sub>)<sub>2</sub>, wherein each occurrence of R<sub>L</sub> is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or

alkylheteroaryl moiety, or two occurrences of R<sub>L</sub> taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

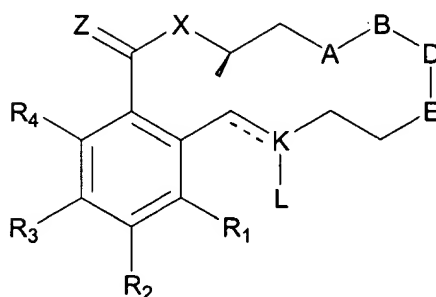
~~The compound of claim 1,~~ wherein one or any two of R<sub>1</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>J</sub>, or R<sub>L</sub> are ~~optionally~~ a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids wherein the linker is an aliphatic or heteroaliphatic moiety, whereby said aliphatic or heteroaliphatic moiety is substituted or unsubstituted, branched or unbranched, or cyclic or acyclic; and

pharmaceutically acceptable derivatives thereof.

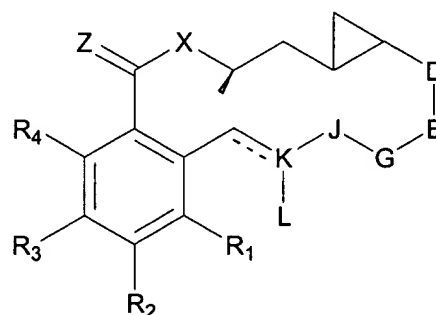
3. (Currently amended) The compound of claim ~~1~~2, wherein one or any two of R<sub>1</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>J</sub>, or R<sub>L</sub> are a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids, wherein the linker is a moiety having one of the structures  $-(CH_2)_n-CH=CH-(CH_2)_m-$ ,  $-(CH_2)_p-C\equiv C-(CH_2)_q-$ , or  $-CH_2(CH_2)_sCH_2-$ , wherein each occurrence of n, m, p, q and s is independently an integer from 0-10, and wherein one or more of the hydrogen atoms are optionally replaced with an alkyl, heteroalkyl, aryl, heteroaryl, alkylaryl or alkylheteroaryl moiety or a secondary or tertiary amine, hydroxyl, or thiol.

4. through 6. (Cancelled).

7. (Original) The compound of claim 1, wherein G and J together represent -CH<sub>2</sub>-CH<sub>2</sub>- and the compound has the structure:



8. (Currently amended) ~~The compound of claim 1, wherein A-B is a cyclopropyl ring and the compound has~~ having the structure:



wherein the dotted line --- represents an optional bond, such that either a single or a double bond is present;

R<sub>1</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or N(R<sub>A</sub>)<sub>2</sub>, wherein each occurrence of R<sub>A</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>2</sub> is hydrogen, halogen, cyano, -OR<sub>B</sub>, -N(R<sub>B</sub>)<sub>2</sub>, -SR<sub>B</sub>, -O(C=O)R<sub>B</sub>, -N(R<sub>B</sub>)(C=O)(R<sub>B</sub>), -C(O)R<sub>B</sub>, -C(O)OR<sub>B</sub>, -CON(R<sub>B</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>B</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>B</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>3</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or -N(R<sub>C</sub>)<sub>2</sub>, wherein each occurrence of R<sub>C</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;



R<sub>4</sub> is hydrogen, halogen, cyano, -OR<sub>D</sub>, -N(R<sub>D</sub>)<sub>2</sub>, -SR<sub>D</sub>, -O(C=O)R<sub>D</sub>, -N(R<sub>D</sub>)(C=O)(R<sub>D</sub>), -C(O)R<sub>D</sub>, -C(O)OR<sub>D</sub>, -CON(R<sub>D</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>D</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>D</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;

D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>-, -CR<sub>8</sub>=CR<sub>9</sub>-, wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, -CR<sub>10</sub>=CR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

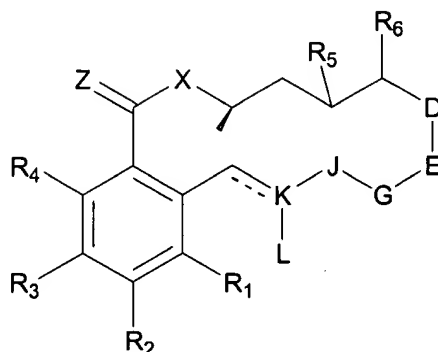
K and L together represent C=O, C=S, CH-CH<sub>3</sub>, CH-CH(R<sub>L</sub>)<sub>2</sub>, C=C(R<sub>L</sub>)<sub>2</sub>, -CH<sub>2</sub>-, -C(-S(CH<sub>2</sub>)<sub>3</sub>S)-, CH-OR<sub>L</sub>, CH-SR<sub>L</sub>, CH-N(R<sub>L</sub>)<sub>2</sub>, CH-N(R<sub>L</sub>)(C=O)(R<sub>L</sub>), C=N-O-R<sub>L</sub>, CH-N=O, C=C(R<sub>L</sub>)-N(R<sub>L</sub>)<sub>2</sub>, C=N-R<sub>L</sub>, C=N-N(R<sub>L</sub>)<sub>2</sub>, or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent C-N(R<sub>L</sub>)<sub>2</sub>, wherein each occurrence of R<sub>L</sub> is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or two occurrences of R<sub>L</sub> taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

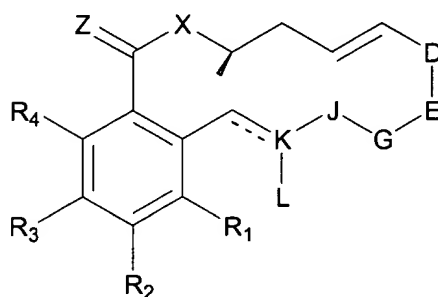
wherein one or any two of R<sub>L</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, or R<sub>L</sub> are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and

pharmaceutically acceptable derivatives thereof.

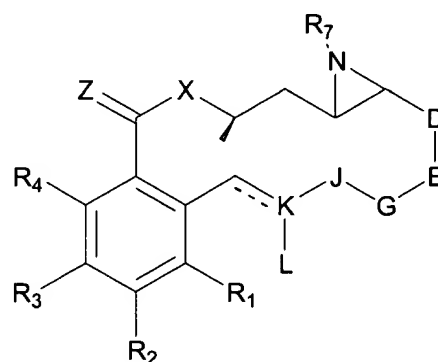
9. (Original) The compound of claim 1, wherein A and B together represent  $-\text{CHR}_5-\text{CHR}_6-$  and the compound has the structure:



10. (Original) The compound of claim 1, wherein A and B together represent  $-\text{CH}=\text{CH}-$  and the compound has the structure:



11. (Currently amended) ~~The compound of claim 1, wherein A and B together represent an~~  
~~aziridine and the compound has~~ having the structure:



wherein the dotted line --- represents an optional bond, such that either a single or a

double bond is present;

R<sub>1</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or N(R<sub>A</sub>)<sub>2</sub>, wherein each occurrence of R<sub>A</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>2</sub> is hydrogen, halogen, cyano, -OR<sub>B</sub>, -N(R<sub>B</sub>)<sub>2</sub>, -SR<sub>B</sub>, -O(C=O)R<sub>B</sub>, -N(R<sub>B</sub>)(C=O)(R<sub>B</sub>), -C(O)R<sub>B</sub>, -C(O)OR<sub>B</sub>, -CON(R<sub>B</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>B</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>B</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>3</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or -N(R<sub>C</sub>)<sub>2</sub>, wherein each occurrence of R<sub>C</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>4</sub> is hydrogen, halogen, cyano, -OR<sub>D</sub>, -N(R<sub>D</sub>)<sub>2</sub>, -SR<sub>D</sub>, -O(C=O)R<sub>D</sub>, -N(R<sub>D</sub>)(C=O)(R<sub>D</sub>), -C(O)R<sub>D</sub>, -C(O)OR<sub>D</sub>, -CON(R<sub>D</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>D</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>D</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;

D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>-, -CR<sub>8</sub>=CR<sub>9</sub>-, wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, -CR<sub>10</sub>=CR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

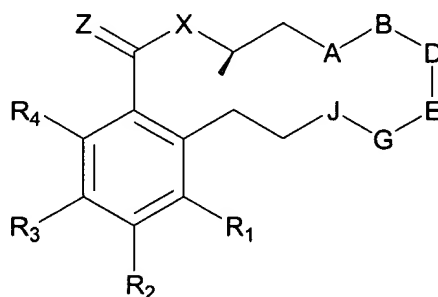
K and L together represent C=O, C=S, CH-CH<sub>3</sub>, CH-CH(R<sub>L</sub>)<sub>2</sub>, C=C(R<sub>L</sub>)<sub>2</sub>, -CH<sub>2</sub>-, -C(-S(CH<sub>2</sub>)<sub>3</sub>S-)-, CH-OR<sub>L</sub>, CH-SR<sub>L</sub>, CH-N(R<sub>L</sub>)<sub>2</sub>, CH-N(R<sub>L</sub>)(C=O)(R<sub>L</sub>), C=N-O-R<sub>L</sub>, CH-N=O, C=C(R<sub>L</sub>)-N(R<sub>L</sub>)<sub>2</sub>, C=N-R<sub>L</sub>, C=N-N(R<sub>L</sub>)<sub>2</sub>, or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent C-N(R<sub>L</sub>)<sub>2</sub>, wherein each occurrence of R<sub>L</sub> is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or two occurrences of R<sub>L</sub> taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently

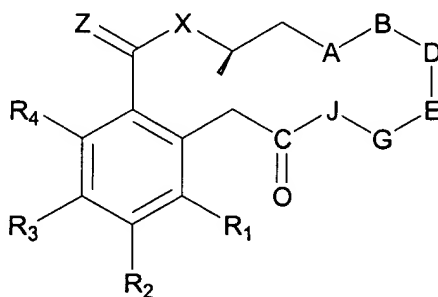
be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

wherein one or any two of  $R_1$ ,  $R_A$ ,  $R_2$ ,  $R_B$ ,  $R_3$ ,  $R_C$ ,  $R_4$ ,  $R_D$ , or  $R_L$  are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and  
pharmaceutically acceptable derivatives thereof.

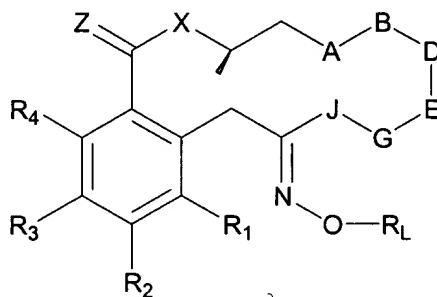
12. (Previously presented) The compound of claim 1, wherein the optional bond represented by the dotted line --- is absent so that a single bond is present, K and L together represent  $-CH_2-$  and the compound has the structure:



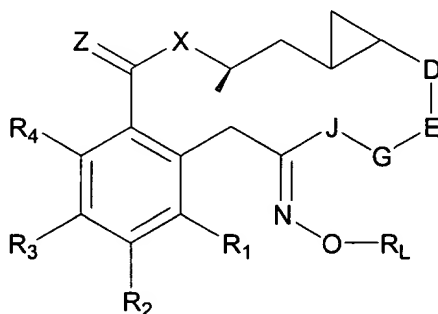
13. (Previously presented) The compound of claim 1, wherein the optional bond represented by the dotted line --- is absent so that a single bond is present, K-L together represent  $C=O$  and the compound has the structure:



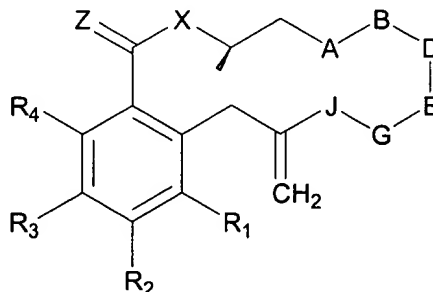
14. (Previously presented) The compound of claim 1, wherein the optional bond represented by the dotted line --- is absent so that a single bond is present, K and L together represent C=N-O-R<sub>L</sub> and the compound has the structure:



15. (Currently amended) The compound of claim ~~1~~8, wherein the optional bond represented by the dotted line --- is absent so that a single bond is present, A and B together represent a cyclopropyl group, K and L together represent C=N-O-R<sub>L</sub> and the compound has the structure:



16. (Currently amended) The A compound of claim 1, wherein the optional bond represented by the dotted line— is absent so that a single bond is present, K and L together represent  $C=CH_2$  and the compound has having the structure:



\_\_\_\_\_ wherein  $R_1$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $N(R_A)_2$ , wherein each occurrence of  $R_A$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_2$  is hydrogen, halogen, cyano,  $-OR_B$ ,  $-N(R_B)_2$ ,  $-SR_B$ ,  $-O(C=O)R_B$ ,  $-N(R_B)(C=O)(R_B)$ ,  $-C(O)R_B$ ,  $-C(O)OR_B$ ,  $-CON(R_B)_2$ ,  $-OCO_2R_B$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_3$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $-N(R_C)_2$ , wherein each occurrence of  $R_C$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

\_\_\_\_\_  $R_4$  is hydrogen, halogen, cyano,  $-OR_D$ ,  $-N(R_D)_2$ ,  $-SR_D$ ,  $-O(C=O)R_D$ ,  $-N(R_D)(C=O)(R_D)$ ,  $-C(O)R_D$ ,  $-C(O)OR_D$ ,  $-CON(R_D)_2$ ,  $-OCO_2R_D$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

\_\_\_\_\_  $Z$  is O;

\_\_\_\_\_  $X$  is O;



\_\_\_\_\_  $-CHR_5-CHR_6-$ ,  $-CR_5=CR_6-$ , wherein  $R_5$  and  $R_6$  are each independently hydrogen, halogen, cyano,  $-OR_J$ ,  $-N(R_J)_2$ ,  $-SR_J$ ,  $-O(C=O)R_J$ ,  $-O(S=O)R_J$ ,  $-N(R_J)(C=O)(R_J)$ ,  $-C(=O)R_J$ ,  $-C(=O)OR_J$

-CON(R<sub>J</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>J</sub>, -OSO<sub>2</sub>R<sub>J</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>J</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, and wherein R<sub>7</sub> is hydrogen, -OR<sub>K</sub>, -SR<sub>K</sub>, -C(O)OR<sub>K</sub>, -S(O)<sub>2</sub>R<sub>K</sub>, -O(C=O)R<sub>K</sub>, -N(R<sub>K</sub>)(C=O)(R<sub>K</sub>), -C(O)R<sub>K</sub>, -C(O)OR<sub>K</sub>, -CON(R<sub>K</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>K</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>K</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or when A and B together represent -CHR<sub>5</sub>-CHR<sub>6</sub>-, R<sub>5</sub> and R<sub>6</sub> taken together represent a substituted or unsubstituted 3-7 membered aliphatic, heteroaliphatic, aryl or heteroaryl ring,

D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>-, -CR<sub>8</sub>=CR<sub>9</sub>-, wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

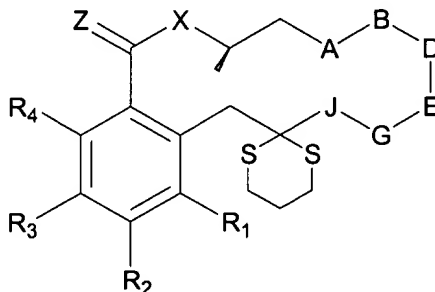
G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, -CR<sub>10</sub>=CR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

wherein one or any two of R<sub>1</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, R<sub>5</sub>, R<sub>6</sub>, or R<sub>J</sub>, are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and

pharmaceutically acceptable derivatives thereof.

17. (Currently amended) The A compound of claim 1, wherein the optional bond represented by the dotted line— is absent so that a single bond is present, K and L together represent a dithiane,  $-C(S(CH_2)_3S)-$ , and the compound has having the structure:



\_\_\_\_\_ wherein  $R_1$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $N(R_A)_2$ , wherein each occurrence of  $R_A$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_2$  is hydrogen, halogen, cyano,  $-OR_B$ ,  $-N(R_B)_2$ ,  $-SR_B$ ,  $-O(C=O)R_B$ ,  $-N(R_B)(C=O)(R_B)$ ,  $-C(O)R_B$ ,  $-C(O)OR_B$ ,  $-CON(R_B)_2$ ,  $-OCO_2R_B$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_3$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $-N(R_C)_2$ , wherein each occurrence of  $R_C$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

\_\_\_\_\_  $R_4$  is hydrogen, halogen, cyano,  $-OR_D$ ,  $-N(R_D)_2$ ,  $-SR_D$ ,  $-O(C=O)R_D$ ,  $-N(R_D)(C=O)(R_D)$ ,  $-C(O)R_D$ ,  $-C(O)OR_D$ ,  $-CON(R_D)_2$ ,  $-OCO_2R_D$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

\_\_\_\_\_ Z is O;

\_\_\_\_\_ X is O;



\_\_\_\_\_  $-CHR_5-CHR_6-$ ,  $-CR_5=CR_6-$ , wherein  $R_5$  and  $R_6$  are each independently hydrogen, halogen, cyano,  $-OR_J$ ,  $-N(R_J)_2$ ,  $-SR_J$ ,  $-O(C=O)R_J$ ,  $-O(S=O)R_J$ ,  $-N(R_J)(C=O)(R_J)$ ,  $-C(=O)R_J$ ,  $-C(=O)OR_J$ ,



-CON(R<sub>J</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>J</sub>, -OSO<sub>2</sub>R<sub>J</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>J</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, and wherein R<sub>7</sub> is hydrogen, -OR<sub>K</sub>, -SR<sub>K</sub>, -C(O)OR<sub>K</sub>, -S(O)<sub>2</sub>R<sub>K</sub>, -O(C=O)R<sub>K</sub>, -N(R<sub>K</sub>)(C=O)(R<sub>K</sub>), -C(O)R<sub>K</sub>, -C(O)OR<sub>K</sub>, -CON(R<sub>K</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>K</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>K</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or when A and B together represent -CHR<sub>5</sub>-CHR<sub>6</sub>-, R<sub>5</sub> and R<sub>6</sub> taken together represent a substituted or unsubstituted 3-7 membered aliphatic, heteroaliphatic, aryl or heteroaryl ring,

D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>-, -CR<sub>8</sub>=CR<sub>9</sub>-, wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

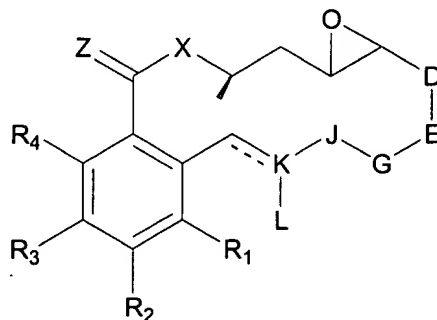
G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, -CR<sub>10</sub>=CR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

wherein one or any two of R<sub>1</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, R<sub>5</sub>, R<sub>6</sub>, or R<sub>J</sub>, are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and

pharmaceutically acceptable derivatives thereof.

18. (Previously presented) The compound of claim 1, wherein A and B together represent an epoxide and the compound has the structure:



wherein at least one of the D-E, G-J, K-L, R<sub>2</sub> and R<sub>4</sub> are defined as:

R<sub>2</sub> is hydrogen, halogen, cyano, -N(R<sub>B</sub>)<sub>2</sub>, -SR<sub>B</sub>, -N(R<sub>B</sub>)(C=O)(R<sub>B</sub>); -C(O)R<sub>B</sub>, -C(O)OR<sub>B</sub>, -CON(R<sub>B</sub>)<sub>2</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>B</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>3</sub> is not hydrogen;

R<sub>4</sub> is hydrogen, halogen, cyano, -N(R<sub>D</sub>)<sub>2</sub>, -SR<sub>D</sub>, -N(R<sub>D</sub>)(C=O)(R<sub>D</sub>), -C(O)R<sub>D</sub>, -C(O)OR<sub>D</sub>, -CON(R<sub>D</sub>)<sub>2</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>D</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

D and E together represent -CHR<sub>8</sub>-CHR<sub>9</sub>- wherein R<sub>8</sub> and R<sub>9</sub> are each independently hydrogen or lower alkyl;

G and J together represent -CHR<sub>10</sub>-CHR<sub>11</sub>-, wherein R<sub>10</sub> and R<sub>11</sub> are each independently hydrogen or lower alkyl;

K and L together represent C=S, CH-CH<sub>3</sub>, CH-CH(R<sub>L</sub>)<sub>2</sub>, C=C(R<sub>L</sub>)<sub>2</sub>, -CH<sub>2</sub>-, -C(-S(CH<sub>2</sub>)<sub>3</sub>S-)-, CH-OR<sub>L</sub>, CH-SR<sub>L</sub>, CH-N(R<sub>L</sub>)<sub>2</sub>, CH-N(R<sub>L</sub>)(C=O)(R<sub>L</sub>), CH-N=O, C=C(R<sub>L</sub>)-N(R<sub>L</sub>)<sub>2</sub>, C=N-R<sub>L</sub>, C=N-N(R<sub>L</sub>)<sub>2</sub>, or, if the optional bond represented by the dotted line -- is present so that a double bond is present, then K and L together represent C-N(R<sub>L</sub>)<sub>2</sub>, wherein each occurrence of R<sub>L</sub> is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or two occurrences of R<sub>L</sub> taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety; or any two of R<sub>1</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>J</sub>, or R<sub>L</sub> are a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids.

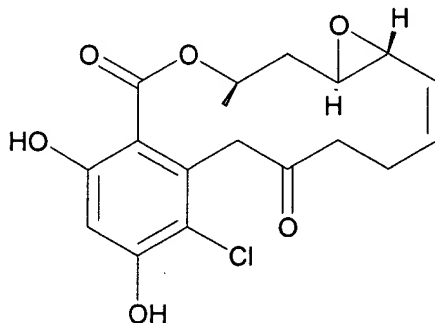
19. (Previously presented) The compound of claim 1, wherein A and B together are -CHR<sub>5</sub>-CHR<sub>6</sub>- or -CR<sub>5</sub>=CR<sub>6</sub>- and R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen, halogen, cyano, -OR<sub>J</sub>, -N(R<sub>J</sub>)<sub>2</sub>, -SR<sub>J</sub>, -O(C=O)R<sub>J</sub>, O(S=O)R<sub>J</sub>, -N(R<sub>J</sub>)(C=O)(R<sub>J</sub>), -OCO<sub>2</sub>R<sub>J</sub> or -OSO<sub>2</sub>R<sub>J</sub> and each

occurrence of  $R_1$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety.

20. (Previously presented) The compound of claim 19, wherein  $R_5$  and  $R_6$  are each independently hydrogen.

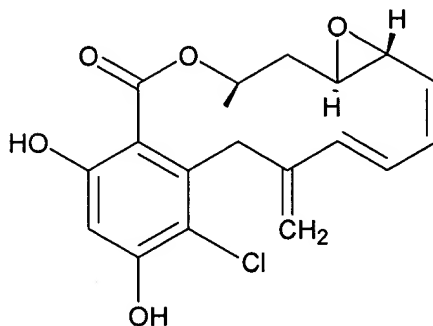
21. (Previously presented) The compound of claim 1, wherein  $R_1$  and  $R_3$  are each independently halogen, hydrogen, or lower alkyl;  $R_2$  is hydrogen or  $-OR_B$ , wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, and  $R_4$  is hydrogen or  $-OR_D$ , wherein each occurrence of  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety.

22. (Previously presented) A compound having the structure:

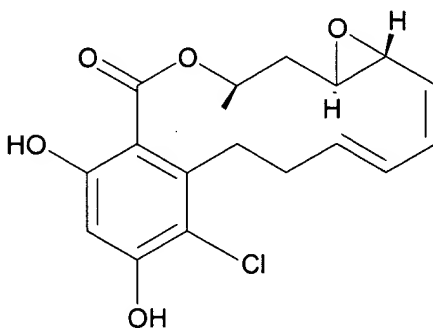


23. (Cancelled).

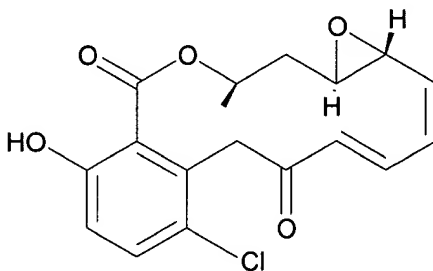
24. (Previously presented) A compound having the structure:



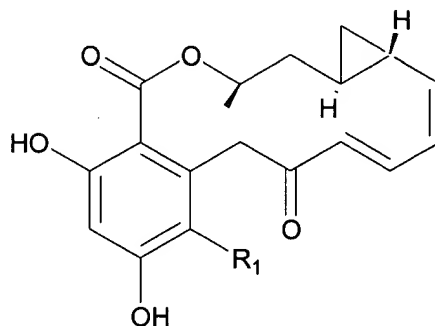
25. (Previously presented) A compound having the structure:



26. (Previously presented) A compound having the structure:

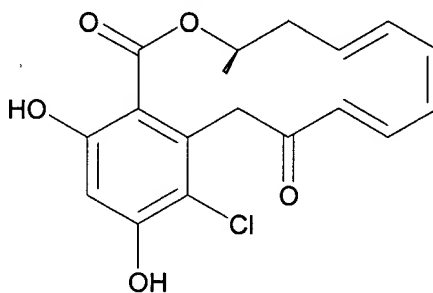


27. (Previously presented) A compound having the structure:



wherein R<sub>1</sub> is hydrogen or Cl.

28. (Previously presented) A compound having the structure:



29. (Cancelled).

30. (Currently amended) A pharmaceutical composition for treating a cancer selected from the group consisting of breast cancers, lung cancers, glioblastoma (brain), and retinoblastoma (eye) comprising a compound of claim 1, 2, 8, 11, 16, or 17 and a pharmaceutically acceptable carrier.

31. and 32. (Cancelled).

33. (Currently amended) A method for treating a cancer selected from the group consisting of breast cancers, lung cancers, glioblastoma (brain), and retinoblastoma (eye) comprising:

administering a therapeutically effective amount of a compound of claim 1, 2, 8, 11, 16, or 17 to a subject in need thereof.

34. (Original) The method of claim 33, wherein the therapeutically effective amount is in the range of 0.001 mg/kg to 50 mg/kg of body weight.

35. (Original) The method of claim 33, wherein the therapeutically effective amount is in the range of 0.01 mg/kg to about 25 mg/kg of body weight.

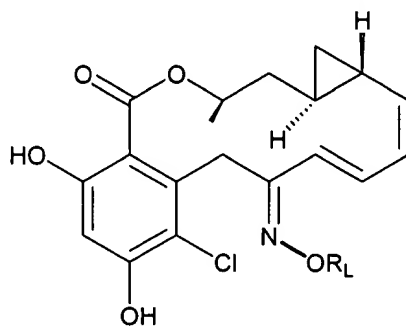
36. and 37. (Cancelled).

38. (Currently amended) A method for inhibiting the growth of or killing cancer cells, said method comprising:

contacting cancer cells with an amount of a compound of claim 1, 2, 8, 11, 16, or 17 effective to inhibit the growth of or kill the cancer cells, wherein the cancer cells are selected from the group consisting of breast cancer cells, lung cancer cells, glioblastoma (brain) cells, and retinoblastoma (eye) cells.

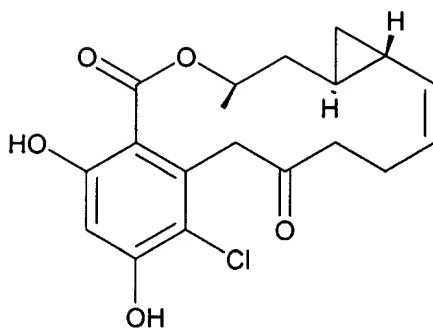
39. through 56. (Cancelled).

57. (Previously presented) A compound having the structure:



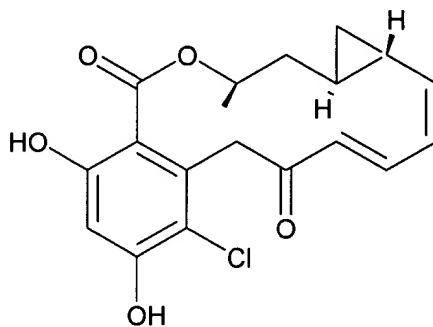
wherein  $R_L$  is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety.

58. (Previously presented) A compound having the structure:

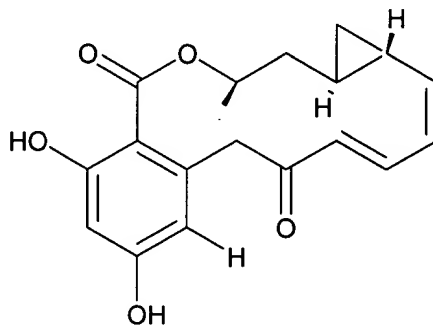


59. through 62. (Cancelled).

63. (Previously presented) The pharmaceutical composition of claim 30, wherein the compound has the structure:

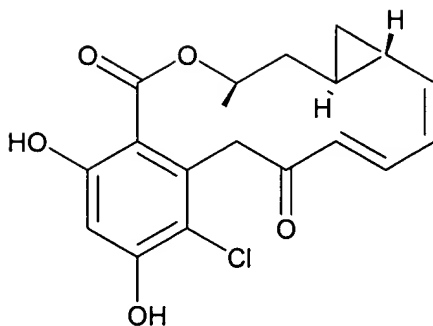


64. (Previously presented) The pharmaceutical composition of claim 30, wherein the compound has the structure:

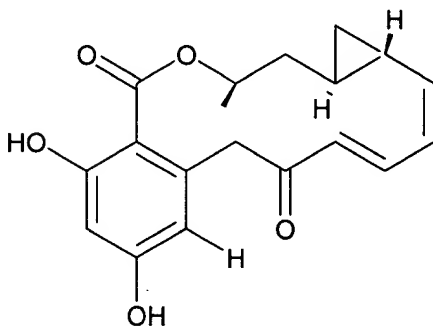


65. (Previously presented) The method of claim 33, or 38, wherein the compound has the

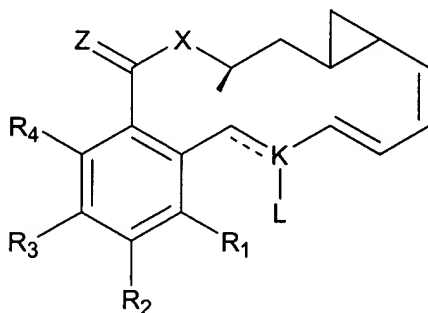
structure:



66. (Previously presented) The method of claim 33, or 38, wherein the compound has the structure:



67. (Previously presented) A compound having the structure:



wherein the dotted line --- represents an optional bond, such that either a single or a double bond is present;

$R_1$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $N(R_A)_2$ , wherein each occurrence of  $R_A$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;



$R_2$  is hydrogen, halogen, cyano,  $-OR_B$ ,  $-N(R_B)_2$ ,  $-SR_B$ ,  $-O(C=O)R_B$ ,  $-N(R_B)(C=O)(R_B)$ ,  $-C(O)R_B$ ,  $-C(O)OR_B$ ,  $-CON(R_B)_2$ ,  $-OCO_2R_B$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_3$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $-N(R_C)_2$ , wherein each occurrence of  $R_C$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_4$  is hydrogen, halogen, cyano,  $-OR_D$ ,  $-N(R_D)_2$ ,  $-SR_D$ ,  $-O(C=O)R_D$ ,  $-N(R_D)(C=O)(R_D)$ ,  $-C(O)R_D$ ,  $-C(O)OR_D$ ,  $-CON(R_D)_2$ ,  $-OCO_2R_D$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;

K and L together represent  $C=O$ ,  $C=S$ ,  $CH-CH_3$ ,  $CH-CH(R_L)_2$ ,  $C=C(R_L)_2$ ,  $-CH_2-$ ,  $-C(-S(CH_2)_3S)-$ ,  $CH-OR_L$ ,  $CH-SR_L$ ,  $CH-N(R_L)_2$ ,  $CH-N(R_L)(C=O)(R_L)$ ,  $C=N-O-R_L$ ,  $CH-N=O$ ,  $C=C(R_L)-N(R_L)_2$ ,  $C=N-R_L$ ,  $C=N-N(R_L)_2$ , or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent  $C-N(R_L)_2$ , wherein each occurrence of  $R_L$  is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or two occurrences of  $R_L$  taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

wherein one or any two of  $R_1$ ,  $R_A$ ,  $R_2$ ,  $R_B$ ,  $R_3$ ,  $R_C$ ,  $R_4$ ,  $R_D$ ,  $R_J$ , or  $R_L$  are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and

pharmaceutically acceptable derivatives thereof.

68. (Previously presented) The compound of claim 67, wherein  $R_1$  and  $R_3$  are each

independently halogen, hydrogen, or lower alkyl;

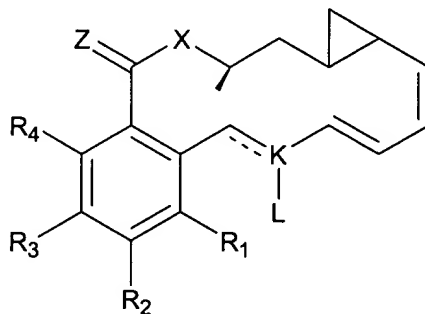
$R_2$  is hydrogen or  $-OR_B$ , wherein  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety; and

$R_4$  is hydrogen or  $-OR_D$ , wherein  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety.

69. (Previously presented) The compound of claim 67, wherein K and L taken together are  $C=N-O-R_L$ .

70. (Previously presented) The compound of claim 68, wherein K and L taken together are  $C=N-O-R_L$ .

71. (Previously presented) The pharmaceutical composition of claim 30, wherein the compound has the structure:



wherein the dotted line --- represents an optional bond, such that either a single or a double bond is present;

$R_1$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $N(R_A)_2$ , wherein each occurrence of  $R_A$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_2$  is hydrogen, halogen, cyano,  $-OR_B$ ,  $-N(R_B)_2$ ,  $-SR_B$ ,  $-O(C=O)R_B$ ,  $-N(R_B)(C=O)(R_B)$ ,  $-C(O)R_B$ ,  $-C(O)OR_B$ ,  $-CON(R_B)_2$ ,  $-OCO_2R_B$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>3</sub> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or -N(R<sub>C</sub>)<sub>2</sub>, wherein each occurrence of R<sub>C</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

R<sub>4</sub> is hydrogen, halogen, cyano, -OR<sub>D</sub>, -N(R<sub>D</sub>)<sub>2</sub>, -SR<sub>D</sub>, -O(C=O)R<sub>D</sub>, -N(R<sub>D</sub>)(C=O)(R<sub>D</sub>), -C(O)R<sub>D</sub>, -C(O)OR<sub>D</sub>, -CON(R<sub>D</sub>)<sub>2</sub>, -OCO<sub>2</sub>R<sub>D</sub>, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of R<sub>D</sub> is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;

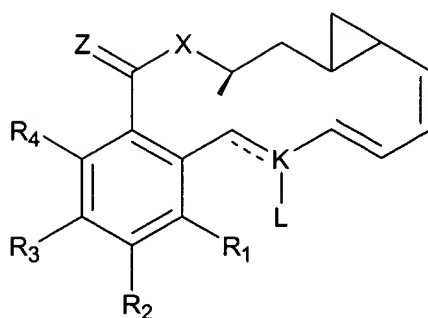
K and L together represent C=O, C=S, CH-CH<sub>3</sub>, CH-CH(R<sub>L</sub>)<sub>2</sub>, C=C(R<sub>L</sub>)<sub>2</sub>, -CH<sub>2</sub>-, -C(-S(CH<sub>2</sub>)<sub>3</sub>S-)-, CH-OR<sub>L</sub>, CH-SR<sub>L</sub>, CH-N(R<sub>L</sub>)<sub>2</sub>, CH-N(R<sub>L</sub>)(C=O)(R<sub>L</sub>), C=N-O-R<sub>L</sub>, CH-N=O, C=C(R<sub>L</sub>)-N(R<sub>L</sub>)<sub>2</sub>, C=N-R<sub>L</sub>, C=N-N(R<sub>L</sub>)<sub>2</sub>, or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent C-N(R<sub>L</sub>)<sub>2</sub>, wherein each occurrence of R<sub>L</sub> is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or two occurrences of R<sub>L</sub> taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

wherein one or any two of R<sub>1</sub>, R<sub>A</sub>, R<sub>2</sub>, R<sub>B</sub>, R<sub>3</sub>, R<sub>C</sub>, R<sub>4</sub>, R<sub>D</sub>, R<sub>J</sub>, or R<sub>L</sub> are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and

pharmaceutically acceptable derivatives thereof.

72. (Previously presented) The method of claim 33, or 38, wherein the compound has the structure:



wherein the dotted line --- represents an optional bond, such that either a single or a double bond is present;

$R_1$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $N(R_A)_2$ , wherein each occurrence of  $R_A$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_2$  is hydrogen, halogen, cyano,  $-OR_B$ ,  $-N(R_B)_2$ ,  $-SR_B$ ,  $-O(C=O)R_B$ ,  $-N(R_B)(C=O)(R_B)$ ,  $-C(O)R_B$ ,  $-C(O)OR_B$ ,  $-CON(R_B)_2$ ,  $-OCO_2R_B$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_B$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_3$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, or  $-N(R_C)_2$ , wherein each occurrence of  $R_C$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

$R_4$  is hydrogen, halogen, cyano,  $-OR_D$ ,  $-N(R_D)_2$ ,  $-SR_D$ ,  $-O(C=O)R_D$ ,  $-N(R_D)(C=O)(R_D)$ ,  $-C(O)R_D$ ,  $-C(O)OR_D$ ,  $-CON(R_D)_2$ ,  $-OCO_2R_D$ , or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety, wherein each occurrence of  $R_D$  is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl moiety;

Z is O;

X is O;

K and L together represent  $C=O$ ,  $C=S$ ,  $CH-CH_3$ ,  $CH-CH(R_L)_2$ ,  $C=C(R_L)_2$ ,  $-CH_2-$ ,  $-C(-S(CH_2)_3S-)-$ ,  $CH-OR_L$ ,  $CH-SR_L$ ,  $CH-N(R_L)_2$ ,  $CH-N(R_L)(C=O)(R_L)$ ,  $C=N-O-R_L$ ,  $CH-N=O$ ,  $C=C(R_L)-N(R_L)_2$ ,  $C=N-R_L$ ,  $C=N-N(R_L)_2$ , or, if the dotted line --- represents a bond, whereby a double bond is present, then K and L together represent  $C-N(R_L)_2$ , wherein each occurrence of  $R_L$  is independently hydrogen, an aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or

alkylheteroaryl moiety, or two occurrences of  $R_L$  taken together represent a 3 to 7-membered cyclic aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, or branched or unbranched, and each aryl, heteroaryl, alkylaryl, and alkylheteroaryl moiety may be substituted or unsubstituted;

wherein one or any two of  $R_1$ ,  $R_A$ ,  $R_2$ ,  $R_B$ ,  $R_3$ ,  $R_C$ ,  $R_4$ ,  $R_D$ ,  $R_J$ , or  $R_L$  are optionally a linker covalently bonded to a compound selected from the group consisting of radicicol, monocillin, geldanamycin, and steroids; and

pharmaceutically acceptable derivatives thereof.

73. (Cancelled).

74. (Cancelled).